



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,015	07/14/2003	Eun-Sung Seo	9898-291	9260

7590 12/14/2004
MARGER JOHNSON & McCOLLOM, P.C.
1030 S. W. Morrison Street
Portland, OR 97205

EXAMINER

VU, QUANG D

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,015	SEO ET AL.	
	Examiner	Art Unit	
	Quang D Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4, 5, 7, 8, 9, 10, 12-14 and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,905,295 to Prall et al.

Regarding claim 1, Prall et al. (figures 1A-B) teach a fuse bank of a semiconductor memory device comprising:

a first laser fuse (103) which includes a first laser fusing region (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) which is disposed in a first direction, a first connecting line region (upper portion of [103a]) partially in the first laser fusing region (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) which is disposed to be bent in a second direction; a second connecting line region (lower portion of [103b]) partially in the first laser fusing region (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) which is disposed to be bent in a third direction; and

a second laser fuse (103') which includes a second laser fusing region (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) which is disposed in the first direction, a third connecting line region (upper portion of

Art Unit: 2811

[103a'']) partially in the second laser fusing region (a horizontal middle region, which is located between an upper portion of [103a''] and a lower portion of [103b'']) which is disposed to be bent in the second direction; and a fourth connecting line region (lower portion of [103b'']) partially in the second laser fusing region (a horizontal middle region, which is located between an upper portion of [103a''] and a lower portion of [103b'']) which is disposed to be bent in the third direction,

wherein the first laser fuse (103) and the second laser fuse (103') are disposed adjacently with a space of a predetermined distance there between, the first laser fusing region (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and the second laser fusing region (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) form a laser fusing region of the fuse bank, and the first laser fuse and the second laser fuse are disposed on a plane.

Regarding claim 3, Prall et al. teach the first direction is perpendicular to the second direction and the third direction.

Regarding claim 4, Prall et al. teach the second direction is opposite to the third direction.

Regarding claim 5, Prall et al. (figures 1A-B) teach a fuse bank of a semiconductor memory device comprising:

a first laser fuse group which has multiple laser fuses (101, 103) arranged in a first direction with a space of a predetermined distance there between; and

a second laser fuse group that has multiple laser fuses (101', 103') arranged in the first direction with a space of a predetermined distance there between,

wherein the first laser fuse group (101, 103) and the second laser fuse group (101', 103') each include a laser fusing region (a horizontal middle region, which is located between an upper portion of [101a] and a lower portion of [101b]; a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]; a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']; a horizontal middle region, which is located between an upper portion of [101a'] and a lower portion of [101b']) which is disposed in the first direction, a first connecting line region (upper portion of [101a]) partially in the first laser fusing region (a horizontal middle region, which is located between an upper portion of [101a] and a lower portion of [101b]) which is disposed to be bent in a second direction, and a second connecting line region (lower portion of [101b]) which is disposed to be bent in a third direction, and the first laser fuse and the second laser fuse are adjacently disposed on a plane.

Regarding claim 7, Prall et al. teach the first direction is perpendicular to the second direction and the third direction.

Regarding claim 8, Prall et al. teach the second direction is opposite to the third direction.

Regarding claim 9, Prall et al. teach the first laser fuse group (101, 103) and the second laser fuse group (101', 103') are disposed repeatedly.

Regarding claim 10, Prall et al. (figures 1A-B) teach a fuse bank of a semiconductor memory device comprising:

a first laser fuse group which has multiple laser fuses (101,103) arranged in a first direction with a space of a predetermined distance there between; and

Art Unit: 2811

a second laser fuse group that has multiple laser fuses (101', 103') arranged in the first direction with a space of a predetermined distance there between,

wherein the first laser fuse group (101, 103) and the second laser fuse group (101', 103') each include a laser fusing region (a horizontal middle region, which is located between an upper portion of [101a] and a lower portion of [101b]; a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]; a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']; a horizontal middle region, which is located between an upper portion of [101a'] and a lower portion of [101b']) which is disposed in the first direction, a first connecting line region (upper portion of [101a]) partially in the first laser fusing region (a horizontal middle region, which is located between an upper portion of [101a] and a lower portion of [101b]) which is disposed to be bent in a second direction, and a second connecting line region (lower portion of [101b]) partially in the first laser fusing region (a horizontal middle region, which is located between an upper portion of [101a] and a lower portion of [101b]) which is disposed to be bent in a third direction, the first laser fuse group (101, 103) and the second laser fuse group (101', 103') are disposed adjacently, the first laser fuse group (101, 103) and the second laser fuse group (101', 103') are disposed to be symmetrical about the direction perpendicular to the first direction, and the first laser fuse group (101, 103) and the second laser fuse group (101', 103') are disposed on a plane.

Regarding claim 12, Prall et al. teach the first direction is perpendicular to the second direction and the third direction.

Regarding claim 13, Prall et al. teach the second direction is opposite to the third direction.

Art Unit: 2811

Regarding claim 14, Prall et al. teach the first laser fuse group (101, 103) and the second laser fuse group (101', 103') are disposed repeatedly.

Regarding claim 15, Prall et al. (figures 1A-B) teach a fuse bank, comprising:

a fuse region formed from a first fuse region (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and a second fuse region (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) arranged parallel to each other, each with a first end (a left end portion of horizontal middle region of first fuse region and a left end portion of horizontal middle region of second fuse region) and a second end (a right end portion of horizontal middle region of first fuse region and a right end portion of horizontal middle region of second fuse region); and

connecting lines (upper portions of [103a, 103a'] and lower portions of [103b, 103b']) connected to each of the first (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and second (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) fuse regions, such that each of the first (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and second (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) fuse regions has a connecting line (upper portions [103a, 103a'] and lower portions [103b, 103b']) on each end, wherein connecting lines (upper portion of [103a and 103a']) on the first end (a left end portion of horizontal middle region of first fuse region and a left end portion of horizontal middle region of second fuse region) are perpendicular to the first (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and second (a horizontal

Art Unit: 2811

middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) fuse regions in a first direction and connecting lines (lower portion of [103b and 103b']) on the second end (a right end portion of horizontal middle region of first fuse region and a right end portion of horizontal middle region of second fuse region) are perpendicular to the first (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and second (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) fuse regions in a second direction.

Regarding claim 16, Prall et al. teach the first (a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]) and second (a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']) fuse regions being offset from each other a predetermined distance.

Regarding claim 17, Prall et al. teach connecting lines (upper portions [103a, 103a'] and lower portions [103b, 103b']) at each end of the fuse region being offset from each other a predetermined distance.

Regarding claim 18, Prall et al. (figures 1A-B) teach a fuse bank, comprising:

at least two fuses. (103 and 103'), each fuse comprising:

a plurality of fuse regions (first fuse region includes a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]; and second fuse region includes a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']), each having a first end and a second end (first end includes a left end portion of horizontal middle region of first fuse region and a left end portion of horizontal middle region of second fuse region; and a second end includes a right end portion of horizontal

Art Unit: 2811

middle region of first fuse region and a right end portion of horizontal middle region of second fuse region) arranged parallel to each other and offset from each other a predetermined distance; and

a plurality of connecting lines (upper portions of [103a, 103a'] and lower portions of [103b, 103b']), one disposed at the first and second ends (first end includes a left end portion of horizontal middle region of first fuse region and a left end portion of horizontal middle region of second fuse region; and a second end includes a right end portion of horizontal middle region of first fuse region and a right end portion of horizontal middle region of second fuse region) of each of the plurality of fuse regions (first fuse region includes a horizontal middle region, which is located between an upper portion of [103a] and a lower portion of [103b]; and second fuse region includes a horizontal middle region, which is located between an upper portion of [103a'] and a lower portion of [103b']), wherein the plurality of connecting lines are perpendicular to the plurality of fuse regions.

Regarding claim 19, Prall et al. teach the connecting lines (upper portions of [103a, 103a']) disposed at the first end (a left end portion of horizontal middle region of first fuse region and a left end portion of horizontal middle region of second fuse region) of a first fuse region and a second fuse region arranged in a first direction and the connecting lines (lower portions of [103b, 103b']) disposed at the second end (a right end portion of horizontal middle region of first fuse region and a right end portion of horizontal middle region of second fuse region) of the first fuse region and the second fuse region arranged in a second direction.

Regarding claim 20, Prall et al. teach the connecting lines (upper portion of [103a] and lower portion of [103b']) at the first end (a left end portion of horizontal middle region of first

Art Unit: 2811

fuse region) of a first fuse region and the second end (a right end portion of horizontal middle region of second fuse region) of a second fuse region arranged in a first direction and the connecting lines (lower portion of [103b] and upper portion of [103a']) at the second end (a right end portion of horizontal middle region of first fuse region) of the first fuse region and the first end (a left end portion of horizontal middle region of second fuse region) of the second fuse region arranged in a second direction.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,905,295 to Prall et al.

Regarding claim 2, Prall et al. differ from the claimed invention by not showing the laser fusing region has a parallelogram shape. It would have been obvious to one having ordinary skill in the art to select the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant).

Art Unit: 2811

Regarding claim 6, Prall et al. differ from the claimed invention by not showing the laser fusing region has a parallelogram shape. It would have been obvious to one having ordinary skill in the art to select the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant).

Regarding claim 11, Prall et al. differ from the claimed invention by not showing the laser fusing region has a parallelogram shape. It would have been obvious to one having ordinary skill in the art to select the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant).

Response to Arguments

Applicant's arguments filed 09/07/04 have been fully considered but they are not persuasive.

It is argued, in page 6 of the remarks, that Prall et al. and Lehman do not teach or suggest the connecting lines partially in the first laser fusing region of the claimed limitations of claims

Art Unit: 2811

1, 5 and 10. This argument is not convincing because the applicant fails to show the connecting lines and the fuse region, which are the same material or different material. However, Prall et al. teach the connecting lines partially in the first laser fusing region as discussed above.

It is argued, in page 7 of the remarks, that Prall et al. and Lehman do not teach or suggest the connecting lines, which are connected to the first and second end of the fuse regions of the claimed limitations of claims 15 and 18. This argument is not convincing because the applicant fails to show the connecting lines, which are partially located in the fuse region or the portion of the fuse region. However, Prall et al. teach the connecting lines, which are connected to the first and second end of the fuse regions as discussed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 571-272-1667. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2811

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qv
November 26, 2004

A handwritten signature in black ink, appearing to read 'Eddie Lee', is positioned above the printed name and title.

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800